Amendments to the Drawings:

The attached sheet of drawings includes changes to FIGS. 1 and 2. This sheet, which includes FIGS. 1 and 2, replaces the original sheet including FIGS. 1 and 2. FIGS. 1 and 2 have been labeled with the legend "Prior Art".

Attachment: 1 Replacement Sheet

REMARKS/ARGUMENTS

The claims are 23, 25-31 and 33-37. Claim 23 has been amended to incorporate the subject matter of claim 24. Accordingly, claim 24 has been canceled, and claim 25, which previously depended on claim 24 has been amended to depend on claim 23. Claim 25 and claim 31 have also been amended to improve their form, and claim 32 has been canceled. The drawings have been amended to label FIGS. 1 and 2, with the legend "Prior Art" as requested by the Examiner. Reconsideration is expressly requested.

The Examiner objected to the drawings stating that FIGS. 1 and 2 should be designated by a legend such as --Prior Art--. In response, Applicants have amended FIGS. 1 and 2 so that they are labeled "Prior Art" as requested by the Examiner.

The Examiner indicated that claims 25-30 and 33-37 contained allowable subject matter; however, claims 23 and 31 were rejected under 35 U.S.C. 103(a) as being unpatentable over the *Saha Publication "Quadrature-Quadrature phase-shift keying"*, IEEE transactions on communications May 1989 in view of *Feher U.S. Patent Application Publication No. 2002/0181547*. Claims 24 and 32 were rejected under 35 U.S.C. 103(a) as being unpatentable

over *Saha and Feher*, and further in view of the *Waldeck B H et al. Publication "Performance evaluation of TFO-Q2PSK in Gaussian, multipath and fading channels"*, 1999 IEEE African 5th, African Conference in Africa, September-October 1999.

Essentially, the Examiner's position was (1) that *Saha* discloses the method recited in the rejected claims except for specifically teaching a low-pass filter (P_1) for alternating the real and imaginary spectra, (2) that *Feher* discloses this feature, and (3) that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the matched filters of *Saha* with the low-pass filter of *Feher* in order to reduce envelope fluctuation and peak radiation, and to increase efficiency motivated by a desire to improve performance and hence provide a lower power operation. *Waldeck B H et al.* was cited with respect to claims 24 and 32 as teaching double bandwidth square root Nyquist Hilbert transform-pair pulses and time-smoothed (1-D) partial response pulse shape pair.

This rejection is respectfully traversed.

As set forth in claim 23 as amended, Applicants' invention provides a method for dividing the bit rate of QPSK signals into at least two channels having band width limited filters in the modulator and the demodulator by means of splitting the bit street of the QPSK signals. In accordance with the method, the two bit streams are transmitted by means of at least two filter branches into at least one purely real spectrum P_1 and at least one purely imaginary spectrum P_2 by means of filters that form pulse former pairs.

The divided bit stream is transmitted at half the bit rate and, for an expansion to multi-carrier systems, the alternating real and imaginary spectra are implemented by a low-pass filter P_1 and subsequent modulation with equidistant cosine and sine carriers.

RSB filtering takes place, in which a purely imaginary transmission function is determined from the difference of a low-pass having the band width f_g and of the low-pass P_1 having the band width $f_g/2$. The zero places of the pulse responses in the two filter branches lie at a multiple $1/f_g$, and the transmitted bit rate lies at f_g, in each instance, and the spectra are band-limited.

The divided QPSK signals are modulated with a sine carrier or a cosine carrier, in each instance, and the signal obtained in this manner is transmitted to the receiver with demodulator, and demodulation of the signal. The received signal is divided by means of at least two filter branches with a purely real transmission function and a purely imaginary transmission function by means of at least two filter branches having filters that form pulse former pairs, into at least two purely real spectra, whereby the divided signal is transmitted at half the bit rate f_g. The signals having the higher frequency are demodulated by means of RSB demodulation and evaluation as a basic band signal. The roots of the Nyquist flanks lie symmetrical to $\omega_g/2$ for the upper flank of P_1 and the lower flank of P_2, and lie at ω_g for the upper flank of P_2. In this way, Applicants' invention provides a method that is free of inter-symbol interfrequency and cross-talk between the channels and that reduces the infinitely many possibilities for the pairs P_1 and P_2 to a class of filters in its implementation.

As more specifically recited in claim 31, in the case of multi-carrier systems, the real and imaginary channels alternate by means of RSB-modulation with cosine and sine carriers.

None of the cited references discloses or suggests a method for dividing the bit rate of QPSK signals into at least two channels having band width limited filters in the modulator and the demodulator by means of splitting the bit stream of the QPSK signals wherein the roots of the Nyquist flanks lie symmetrical to $\omega_g/2$ for the upper flank of P_1 and the lower flank of P_2, and lie at ω_g for the upper flank of P_2.

This feature is nowhere disclosed or suggested by either *Saha or Feher*. Although the Examiner argues that *Waldeck er al.* teaches double-band with square root Nyquist Hilbert transform-pair pulses and that the root of the Nyquist flanks lie symmetrical to $\omega_g/2$ for the upper flank of P_1 and the lower flank of P_2, and lie at ω_g for the upper flank of P_2, it is respectfully submitted that the Examiner is incorrect. *Waldeck et al.* uses only one root Nyquist filter and its delayed version or its Hilbert transform whereas here P_1 and P_2 are essentially a low pass and a high pass filter overlapping with root Nyquist slopes.

Moreover, with respect to claim 31, although the Examiner has taken the position that *Saha* discloses that in the case of

multi-carrier systems, the real and imaginary channels alternate by means of RSB-modulation with cosine and sine carriers referring to FIG. 14(b) and page 446, subsection B of *Saha*. It is respectfully submitted that this position is likewise incorrect.

As an initial matter, Applicants presume that the Examiner is referring to sub-section B on page 447 as page 446 of *Saha* contains only Subsection A. In any event, FIG. 14(b) and pages 446 and 447 have been reviewed and the disclosure being referred to by the Examiner has not been located. Specifically, no disclosure has been found which refers to alternating real and imaginary channels or of RSB-modulation.

Moreover, nothing in *Saha*, *Feher or Waldeck* mentions anything about multi-carrier systems and VSB modulation, which it is respectfully submitted is by no means a trivial idea because in a first step it has to be found that filter P_2 can be realized by VSB modulation and in a second step to extend this idea from *Saha's* Q2PSK with two carrier (Double Sideband Modulation) to a multicarrier VSB modulation system, which it is respectfully submitted cannot be considered a straightforward idea.

Accordingly, it is respectfully submitted that claims 23 and 31, as amended, are patentable over the cited references, together with claims 25-30 and 33-37, which the Examiner has indicated contain allowable subject matter.

In summary, claims 23, 25 and 31 have been amended, and claims 24 and 32 have been canceled. In addition, FIGS. 1 and 2 have been amended. In view of the foregoing, it is respectfully requested that the claims be allowed and that this case be passed to issue.

Respectfully submitted,

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Enclosure: Appendix - 1 replacement sheet of drawings

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as first class mail in an envelope addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on December 11, 2007.

Amy Klein

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APPENDIX